# COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE

## FY 2000 AND FY 2001 ANNUAL PERFORMANCE PLAN

### Mission Statement

The Cooperative State Research, Education, and Extension Service was created by the Department Reorganization Act of 1994 which merged the former Cooperative State Research Service and the former Extension Service into a single agency. The mission of the Cooperative State Research, Education, and Extension Service (CSREES) is to achieve significant and equitable improvements in domestic and global economic, environmental, and social conditions by advancing creative and integrated research, education, and extension programs in food, agricultural, and related sciences in partnership with both the public and private sectors.

### Research and Education Activities

Research and Education programs administered by the Cooperative State Research, Education, and Extension Service are the U.S. Department of Agriculture's principal entree to the university system of the United States for the purpose of conducting agricultural research and education programs as authorized by the Hatch Act of 1887, as amended (7 U.S.C. 361a-361i); the Cooperative Forestry Research Act of 1962, as amended (16 U.S.C. 585a-7); Public Law 89-106, Section (2), as amended (7 U.S.C. 450i); the National Agricultural Research, Extension, and Teaching Policy Act of 1977, as amended (7 U.S.C. 3101 et seq.); and the Equity in Educational Land-Grant Status Act of 1994, (7 U.S.C. 301). Through these authorities, the U.S. Department of Agriculture participates with State and other cooperators to encourage and assist the State institutions in the conduct of agricultural research and education through the State Agricultural Experiment Stations (SAES) of the 50 States and the territories; by approved Schools of Forestry; the 1890 Land-Grant Institutions and Tuskegee University; Colleges of Veterinary Medicine; and other eligible institutions. The funds appropriated provide Federal support for research and education programs at these institutions.

The State institutions conduct research on the problems continuously encountered in the development of a permanent and sustained agriculture and forestry system, and in the improvement of the economic and social welfare of rural and urban families. Because of differences in climate, soil, and other environmental conditions, as well as market outlets and local issues and circumstances, each State has distinct problems in the production and marketing of crops and livestock. Farmers, foresters, and rural people in the individual states look to their State Agricultural Experiment Stations, universities, and colleges for solutions to state and local problems and request services to help meet changing conditions. By effectively addressing State needs, coordinating multi-state and regional efforts, and planning national strategies and collective programs and projects, the Federal-State partnership in agricultural science contributes to the strength and advancement of American and world agriculture.

The Department's higher education mission is carried out in strong alliance with States, universities, and the private sector. Recognizing the significance of this alliance, the Food and Agriculture Act of 1977 designated USDA as the lead Federal agency for higher education in the food and agricultural sciences. Through the CSREES Office of Higher Education Programs, USDA has implemented the charge with a broad array of initiatives to link teaching, research, and extension and improve the training of food and agricultural scientists and professionals. Most of these efforts were informal until 1984, when the Department initiated the National Needs Graduate Fellowships Grant Program to develop expertise in areas with shortages of scientists. This role was expanded significantly in recent years by implementation of the Higher Education Challenge Grants Program, the 1890 Institution Teaching and Research Capacity Building Grants Program, Multicultural Scholars Program, Tribal Colleges Equity Education Program, Native American Endowment Fund, and Hispanic Serving Institutions Education Grants Program, all of which are intended to strengthen the quality of education programs at U.S. colleges and universities.

## Extension Activities

The Cooperative Extension System (CES), a national education network, is a dynamic organization pledged to meeting the country's needs for results of research, knowledge and educational programs that will enable people to make rational, well-informed decisions. Its mission is to help people improve their lives through an educational process that uses scientific knowledge focused on issues and needs. Cooperative extension work is authorized by the Smith-Lever Act of May 8, 1914, as amended and Title XIV (National Agricultural Research, Extension, and Teaching Policy) of the Food and Agriculture Act of 1977, as amended. To accomplish its mission, the Cooperative Extension System is constantly changing to meet the shifting needs and priorities of the people it serves. To fulfill the requirements of the Smith-Lever Act, the Cooperative Extension Service in each State, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, the Northern Marianas and Micronesia, conduct educational programs to improve agriculture, communities of all sizes, and strengthen families throughout the Nation. This publicly funded, out-of-the classroom educational network combines the expertise and resources of Federal, State and local partners. The partners in this unique system are:

- The Cooperative State Research, Education, and Extension Service of the U.S. Department of Agriculture (USDA);
- Cooperative Extension Services at land-grant universities throughout the United States and its territories; and
- Cooperative Extension Services in nearly all of the Nation's 3,150 counties.

Thousands of State and county extension employees and nearly 3 million volunteers support this partnership and magnify its impact. Strong linkages with both public and private external groups are also crucial to the extension system's strength and vitality.

## Means and Strategies

The Cooperative State Research, Education, and Extension Service is an enabling agency which provides Federal financial assistance, program planning and coordination, and leadership to a widely dispersed, university-based research and education system. The administration of the Cooperative State Research, Education, and Extension Service programs is carried out by research, education, and extension staff located in the Washington, DC area. As of September 30, 1998, there were 383 full-time employees. CSREES will attain the goals of this plan by establishing and implementing competitively awarded programs to support high quality, peer reviewed science and education activities that address identified agricultural problems. CSREES also leverages Federal investments through formula based programs and fosters collaborations between and among institutions and with public and private research and education organizations. The agency emphasizes coordination, and where effective, integration of projects, programs, and activities. The agency gives high priority to the needs of underserved populations and problems related to changes in agricultural production systems.

## Verification and Validation Methods

CSREES works with State partners to develop 5-year plans of work which are annually reviewed and updated to address strategic goals and objectives; conducts programs and projects designed to achieve or work toward achievement of goals; collects and assembles data at the State and national levels; and designs and implements program assessments in critical areas. CSREES seeks to improve coordination through implementation of this planning and accountability system by gathering and synthesizing both State and national data. Established data systems such as the Current Research Information System, Research and Extension Plans of Work , and the Food and Agricultural Education Information System provide a foundation of data from which to track program activities and accomplishments. The agency is currently developing an integrated Research, Education, and Economics Information System platform to facilitate and expedite program analysis and reporting for the Research, Education and Economics mission area of USDA. In addition to utilizing existing data and tracking systems, CSREES is working to jointly establish and implement program evaluation protocols with university and other partners and cooperators. These activities will include expert assessments (such as would be needed to assess

impacts of genome research and discovery), customer surveys (such as would be needed to measure scope and effectiveness of selected extension programs), economic data or social survey data, and physical monitoring (such as would be valuable to determine effects of research-based changes in best management practices affecting environmental quality or public health indicators).

The narrative statements in the performance plan are based on the CSREES Strategic Plan. The Plan recognizes the role of CSREES as an enabling agency for advancing research and educa tion in the agricultural sciences through the administration and oversight of a number of extramural programs, primarily with land-grant universities. These universities and other organizations use Congressionally-mandated funds to conduct research and support educational systems to share research-based knowledge with citizens. The performance plan in no way documents all research and education activities, but provides examples that respond to national priorities during Fiscal Years 2000 - 2004. As background, it utilizes a number of previous planning activities conducted and summarized by USDA, CSREES, the land-grant system and the National Research Council in framing a national response to various accountability mandates, particularly the Government Performance and Results Act of 1993. The performance framework and plan provide the basis for performance indicators and milestones that will demonstrate progress towards the five national goals.

**Goal 1: An agricultural production system that is highly competitive in the global economy.**

This goal area includes research and education programs that are associated with plant and animal production systems. Research and education programs will achieve viable agricultural production systems that allow the agricultural production, processing and marketing sectors to impact state, local, and international markets to sustain the economic viability of U.S. agriculture. Benefits will enhance the contribution of agriculture by developing new economically and environmentally attractive uses for existing commodities.

**Funding by program activities ($000's)**

Program Activities: This goal is supported by research, education, and extension activities conducted under the authorities discussed in the Mission Statement.

| | FY 1998 Actual | FY 1999 Actual | FY 2000 Estimate | FY 2001 Estimate |
|---|---|---|---|---|
| Research/Education Activities | | | | |
| **(Appropriated)** | 154,306 | 149,847 | 152,998 | 151,288 |
| **(Reimbursable)** | 1,178 | 1,339 | 1,272 | 1,272 |
| Extension Activities | | | | |
| **(Appropriated)** | 69,630 | 72,396 | 76,925 | 80,882 |
| **(Reimbursable)** | 9,678 | 5,317 | 6,759 | 6,759 |
| Integrated Authority | | | | |
| **(Appropriated)** | 0 | 0 | 0 | 7,070 |
| Mandatory Activities | 0 | 0 | 53,200 | 55,800 |
| **Total Funding** | 234,792 | 228,899 | 291,154 | 303,071 |
| **FTEs (Appropriated)** | 94 | 87 | 101 | 107 |
| **FTEs (Reimbursable)** | 2 | 1 | 1 | 1 |
| **FTEs (Mandatory)** | 0 | 0 | 3 | 7 |
| **Total FTEs** | 96 | 88 | 105 | 115 |

**Agency Actions 1.1:**

- Establish a new Biobased Products research, extension, and education program to address segments of the Departmental initiative to increase economic opportunities for U.S. farmers by developing and expanding markets with biobased resources
- Establish a new Organic Farming Initiative under the Sustainable Agriculture Research and Education program to support research and extension activities in organic farming and marketing
- Establish a new International Science and Education Grants Program to strengthen U.S. economic competitiveness and to promote international market development of U.S. agriculture.
- Increase multi-state collaborations on value-added products between and among land-grant institutions and the Agricultural Research Service by 20 percent.
- Establish an Organic Transition-Risk Assessment program that supports biologically based pest management practices that mitigate ecological and economic risks associated with the transition from conventional to organic agricultural production systems.
- Support the White House Initiative on HBCU's by increasing collaborative support for HBCU's related to value-added products and uses.

**Objective 1.1:** To produce new and value-added agricultural and forest products and commodities that are sustainable and increasingly competitive in the international marketplace.

**Performance Goal 1.1:** Develop new and value added products.

**Indicators 1.1:**

- Demonstrate the success rates of individuals and organizations funded under the SBIR program using survey methodologies.
- Develop new growth promoters and regulators that are approved by regulatory agencies and transferred or adopted by producers to improve plant and animal performance.
- Develop plant cultivars, varieties and by-products that allow U.S. farmers and companies to compete abroad (e.g., fruits, vegetables, milk and milk products, nuts, etc.)
- Develop packaging of seeds or viable tissues from new varieties with nutrients and/or selective pesticides into discrete, stable and transportable biological systems to give growers a technological and competitive advantage in the market place (e.g. seeds treated with herbicides).
- Encourage multi-state research and education collaborations that develop new and alternative uses of plant and animal commodities and by-products that improve production efficiency and market competitiveness.

- Establish linkages with land-grant universities and other universities, USAID, USDA/OICD to share educational programs with developing nations that increase U.S. competitiveness through technology innovations, product sales, and sales of excess U.S. commodities.

- Develop new uses and byproduct or waste utilization methods for traditional crops, forestry resources, agricultural residues, and waste streams from agricultural processing facilities.

- Develop production, processing, and marketing methods, as well as educational resources, related to organic farming to increase production and marketing options for farmers.

- Identify rate-determining steps in animal and plant fat synthesis to produce healthy and more desirable products for human consumption.

- Encourage development of new university academic programs to train future scientists and professionals in agricultural economic competitiveness and value-added product development.

**Objective 1.2:** To increase global competitiveness of the U.S. agricultural production system.

**Performance Goal 1.2:** Improved animal production systems.

**Indicators 1.2.1:** Animal health and well-being

- Use genetic, molecular, and non-invasive assay methods to identify key events in the pathogenesis of major diseases.

- Develop novel approaches and encourage new academic programs for diagnosis, prevention and treatment of diseases.

- Determine microbial and parasitic genes responsible for virulence of disease, and those responsible for disease resistance.

- Develop behavioral, physiological, and performance criteria that can measure animal well-being (nutritional, housing, environmental and management practices).

- Utilize data on the incidence and distribution of diseases to develop methods for prevention, treatment, or control in large populations.

**Indicators 1.2.2** Biological and genetic enhancement of animal efficiency.

- Develop new and improved methods of germplasm preservation and storage for major species and breeds of domestic animals (maintain pools of biodiversity) for improving animal performance.

- Develop an understanding of the role of growth factors on embryo growth, development and survival.

- Determine the dietary, chemical, hormonal, and physical factors that control intake, digestive flow, nutrient absorption , and partitioning to protein and fat synthesis.

- Develop enterprise models that take an holistic approach in integrating and better understanding biological systems, profitability, and protection of the natural resource base.

- Develop methods, to assess the impact of new technologies on the short - and long term sustainability and economic vitality of production systems, and recommend proper management techniques.

**Objective 1.3** To improve the research base used for decision-making on production and public policy issues on productivity and global competitiveness of the U.S. agricultural production system.

- Create production systems that integrate production technologies, resource management practices, financial management strategies, and policy and marketing for crops, pastures, rangeland, and combination enterprises [combined also with Goal 5].
- Improve the research base for use in the formulation of national agricultural policies in relation to global agricultural policies.
- Engage in mutually beneficial collaborations to develop and use new agricultural production technologies; promote the globalization of faculty and programs of U.S. colleges and universities
- Increase recruitment and training of M.S. and Ph.D. students for placement in a broad spectrum of priority areas, such as food engineering, public health, epidemiology, molecular diagnostics, and risk assessment and management.

**Objective 1.4** Reduce production costs and improve environmental stewardship.

**Indicators 1.4.1** Agroecosystem Management Improvements

- Identify pests, select organisms capable of reducing pest populations and determine the biological principles involved.
- Develop and improve remote sensing, Geographical Information Systems (GIS) and econometric models for decision-making tools (e.g. precision agriculture and prediction of societal, economic and environmental constraints) for investment and environmental stewardship.
- Develop on-farm computer based systems for making investment, expenditure and management systems to increase efficiency of small and medium sized enterprises.
- Increase the number of pesticides cleared, or submitted to EPA for clearance, for use with minor crops by 20 percent.
- Develop Integrated Pest Management (IPM) strategies to reduce the use of costly and sometimes harmful chemicals in food production systems.
- Develop non-chemical methods of weed and pest control to eliminate and reduce the hazards to farm workers.
- Integrate new approaches and methods into existing college curricula.

**Goal 2: To provide a safe and secure food and fiber system**.

This goal area includes a comprehensive look at food safety issues that require a multi-state, multi-institutional, multi-disciplinary and integrated approaches for solutions. In addition to traditional methods of food safety research and education, special emphasis will be placed on the development of analytical methods of detection to reduce the risk of pesticide residues in the food supply, and the use of non-chemical methods of pest control (i.e. sustainable agriculture and integrated pest management strategies). Risk management strategies also will be developed to understand and provide scientific evidence that will guide the work of regulatory agencies (state, local and federal).

**Funding by program activities ($000's)**

Program Activities: This goal is supported by research, education, and extension activities conducted under the authorities in the Purpose Statement.

| | FY 1998 Actual | FY 1999 Actual | FY 2000 Estimate | FY 2001 Estimate |
|---|---|---|---|---|
| Research/Education Activities | | | | |
| **(Appropriated )** | 130,204 | 130,340 | 115,894 | 113,039 |
| **(Reimbursable)** | 1,276 | 1,330 | 1,263 | 1,263 |
| Extension Activities | | | | |
| **(Appropriated)** | 65,814 | 73,249 | 60,473 | 60,229 |
| **(Reimbursable)** | 2,249 | 3,660 | 5,102 | 5,102 |
| Integrated Authority | | | | |
| **(Appropriated)** | 0 | 0 | 20,413 | 25,562 |
| **(Reimbursable**) | 0 | 0 | 0 | 0 |
| Mandatory Activities | 0 | 0 | 25,800 | 26,700 |
| **Total Funding** | 199,543 | 208,579 | 228,945 | 231,895 |
| Staff Years (FTEs) | | | | |
| **(Appropriated)** | 88 | 84 | 81 | 81 |
| **(Reimbursable)** | 2 | 1 | 1 | 1 |
| **(Mandatory)** | 0 | 0 | 2 | 4 |
| **Total FTEs** | 90 | 85 | 84 | 86 |

**Agency Actions 2.1**

- Continue efforts begun in FY 2000 to implement an integrated research, extension, and education food safety program.
- Increase the number of CSREES-led reviews of university food safety programs. Utilize the review process to improve analytical methods of detection of harmful residues in at-risk population groups that may be more heavily exposed to toxic agents (e.g. pregnant women, the young, the elderly, members of certain ethnic groups, and people who have impaired immune responses or who are undergoing chemotherapy).
- Insure that effective peer and merit review processes are in place to respond to the national research and education agenda, and that unnecessary program duplication is eliminated in the use of federal research and education funds.
- Ensure more effective exchanges of research knowledge with regulatory agencies to improve decision-making (e.g. with HHS, APHIS, FSIS, State departments of Agriculture, etc.).
- Establish a new Invasive Species Program to support research, extension, and education activities to address invasive species on an ecoregional basis to ensure food security

**Objective 2.1:** To improve food safety by controlling or eliminating food-borne risks.

**Performance Goal 2.1:** Develop and improve detection and prevention methods

**Indicators 2.1:**

- Increase multi-state and integrated collaborations that help develop prediction models that reduce the risk to farm workers who utilize herbicides and pesticides in agricultural production systems.
- Use molecular methods, including DNA analysis to develop rapid detection methods that determine the causes of food-borne illnesses to consumers caused by pathogens, spoilage microorganisms and toxins.
- Develop inoculation procedures for poultry and other animals that will increase innocuous bacteria to crowd out and reduce the occurrence of harmful bacteria that colonize the intestine and reduce the potential of transferring pathogenic organisms to consumer products of animal origins.
- Ensure food products free of harmful chemicals, including residues from agriculture and other sources.

**Performance Goal 2.2:** Develop improved surveillance and education programs

**Indicators 2.2**

- Develop epidemiological decision tools in consultation with state departments of agriculture to determine the risk to farm workers who utilize herbicides and pesticides in agricultural production systems.
- Develop bilingual multimedia systems and encourage new academic programs to deliver information about food safety and reduce the incidence of foodborne illnesses.
- Develop computer models to help food processors determine the potential safety of new products before they are introduced to consumers.

**Performance Goal 2.2:** Minimize threats to plant and animal production.

**Indicators 2.2:**

- Increase the number of pesticides cleared, or submitted to EPA for clearance, for use with minor crops by 20 percent.
- Develop IPM strategies to reduce the use of harmful chemicals in food production systems.
- Develop non-chemical methods of weed and pest control to eliminate and reduce the hazards to farm workers.
- Develop methodologies to assess relative risks of various components of food products considered to be harmful, and establish data bases to assist consumers, faculty and students, and regulatory agencies in evaluating risks of foods and product choices.
- Develop and assist in the implementation of methodologies to protect plant and animal production systems against new invasive species, control recently-introduced invasive species, and manage established invasive species.

**Performance Goal 2.3:** Enhance Risk Assessment and Management Strategies

**Indicators 2.3:**

- Assess strategies that utilize irradiation of food products in the control of foodborne illness, improve product shelf life and develop strategies that describe the potential benefits to consumers.
- Use research to implement HACCP systems and risk assessment in decisions made by regulatory agencies.
- Use educational strategies that more effectively use labeling and public service announcements to warn consumers who are sensitive to food allergens.
- Encourage the development of consortia of universities and industry collaborating on the development and delivery of model graduate and undergraduate education programs in food safety.

**Goal 3.0: To Achieve a healthier, more well-nourished population.**

The activities proposed in this goal area include topics related to traditional areas of human nutrition, as well as interdisciplinary relationships between nutrition, food science and food technology, and interdisciplinary relationships with psychology and the other social sciences to help value the benefits of nutritional science research. Proposed research and education activities will also assist in the understanding of links between food composition and quality, and the effects of food on health. It will also include the effects of food supply (quantity and quality) on the security of individuals, families, and communities who may be at-risk economically and socially (e.g. women, infant and elderly populations, etc.), thereby affecting the health and well-being of the U.S. population.

**Funding by program activities ($000's)**

Program Activities: This goal is supported by research, education, and extension activities conducted under the authorities discussed in the Purpose Statement.

| | FY 1998 Actual | FY 1999 Actual | FY 2000 Estimate | FY 2001 Estimate |
|---|---|---|---|---|
| Research/Education Activities | | | | |
| **(Appropriated )** | 22,196 | 36,961 | 50,608 | 44,438 |
| **(Reimbursable)** | 1,226 | 1,327 | 1,260 | 1,260 |

| | FY 1998 Actual | FY 1999 Actual | FY 2000 Estimate | FY 2001 Estimate |
|---|---|---|---|---|
| Extension Activities | | | | |
| **(Appropriated)** | 165,782 | 167,060 | 165,555 | 162,816 |
| **(Reimbursable)** | 2,251 | 1,506 | 2,892 | 2,892 |
| Integrated Authority | | | | |
| **(Appropriated)** | 0 | 0 | 4,060 | 15,583 |
| **(Reimbursable**) | 0 | 0 | 0 | 0 |
| Mandatory Activities | 0 | 0 | 13,800 | 14,700 |
| **Total Funding** | 191,455 | 206,854 | 238,175 | 241,689 |
| Staff Years (FTEs) | | | | |
| **(Appropriated)** | 88 | 88 | 106 | 102 |
| **(Reimbursable)** | 1 | 1 | 1 | 1 |
| **(Mandatory)** | 0 | 0 | 1 | 2 |
| **Total FTEs** | 89 | 89 | 108 | 105 |

**Agency Actions 3.1.**

- Improve the nutritional status of Expanded Food and Nutrition Education Program clientele.
- Increase the number of grants by 5 percent for nutrition science academic programs.
- Expand grants programs to address behavioral issues in nutrition.

**Objective 3.1.** Optimal health through improved nutrition.

**Performance Goal 3.1.** To improve the health of citizens through changes in diet, quality of food, and food choices.

**Indicators 3.1.1.** Understanding dietary patterns and consumer food purchasing and consumption behavior.

- Determine the relationship among such variables as socioeconomic status, age, and food and health knowledge that influence consumer food purchasing and consumption behavior.
- Identify factors which inhibit the translation of dietary knowledge into food choices that promote diets consistent with optimal health and well-being, among specific “at-risk” groups.
- Develop and utilize knowledge to modify the dietary risk factors in life-span differences among various socioeconomic and culturally diverse groups.
- Characterize the determinants of infant and maternal nutrition, including the socioeconomic and cultural risk factors influencing health.
- Develop behavioral indicators of nutrition education activities.

**Performance Goal 3.2.** Molecular and cellular basis of nutrition.

**Indicators 3.2.** Improve health through nutrition.

- ! Determine cellular and genetic mechanisms that underlie optimal functions /or nutrient requirements and are reliable indicators of nutritional status.
- ! Strengthen the knowledge and practices which lead to increased community food security.
- ! Improve the data base for bioavailability of critical nutrients in foods common in the diets of “at-risk” ethnic, socioeconomic, and age groups (e.g. adolescents and the elderly).
- ! Develop methods for nutrition surveillance at the national and local levels designed to improve the efficacy of targeting interventions.
- ! Determine the biological actions of food components which are presently not considered nutrients but have potential for influencing health.
- ! Improve the database for bioavailability of critical nutrients in foods in ethnic diets.
- ! Determine if genetically engineered alterations of food composition results in nutrient interactions that impact gene expression of specified differentiated cells.
- ! Encourage development of new university academic programs that incorporate nutrition science information at the cellular and molecular levels.

**Goal 4.0: To achieve greater harmony between agriculture and the environment**.

Research and education programs in this goal area will lead to improved management of the natural resource base associated with agriculture and forestry production. Other programs will improve management of lands in suburban and urban areas. Emphasis will be placed on the natural resource base and how it should be managed to maintain environmental quality. Emphasis will be placed on components associated with agricultural production that have potential for reducing negative impacts on soil, water and air quality. An understanding of these varied activities will provide guidance to producers, manufacturers, and consumers interested in the management and use of lands for production and recreational uses.

**Funding by program activities ($000's)**

Program Activities: This goal is supported by research, education, and extension activities conducted under the authorities discussed in the Purpose Statement.

| | **FY 1998 Actual** | **FY 1999 Actual** | **FY 2000 Estimate** | **FY 2001 Estimate** |
|---|---|---|---|---|
| Research/Education Activities | | | | |
| **(Appropriated )** | 77,925 | 94,790 | 97,993 | 95,256 |
| **(Reimbursable)** | 5,152 | 7,463 | 7,088 | 7,088 |
| Extension Activities | | | | |
| **(Appropriated)** | 53,211 | 54,746 | 52,823 | 52,286 |
| **(Reimbursable)** | 2,476 | 1,503 | 2,890 | 2,890 |

| | FY 1998 Actual | FY 1999 Actual | FY 2000 Estimate | FY 2001 Estimate |
|---|---|---|---|---|
| Integrated Authority | | | | |
| **(Appropriated)** | 0 | 0 | 13,118 | 19,978 |
| **(Reimbursable**) | 0 | 0 | 0 | 0 |
| Mandatory Activities | 0 | 0 | 29,200 | 31,800 |
| **Total Funding** | 138,764 | 158,502 | 203,112 | 209.298 |
| Staff Years (FTEs) | | | | |
| **(Appropriated)** | 64 | 63 | 69 | 69 |
| **(Reimbursable)** | 2 | 3 | 4 | 4 |
| **(Mandatory)** | 0 | 0 | 2 | 4 |
| **Total FTEs** | 66 | 66 | 75 | 77 |

**Agency Actions 4.1.**

- Investigate basic mechanisms controlling the introduction, movement, and fate of agricultural contaminants in surface and ground water and the effect of management practices on these processes.
- Develop land and vegetation management practices that enhance yields and water use efficiency.
- Develop models that interpret the agricultural implications of global environmental change, and develop and evaluate cultural and genetic practices and management systems that can mitigate its potential environmental damage.
- Assess methods for safe and efficient use of agricultural, processing, and municipal wastes on land resources, and develop remediation techniques for land already damaged by wastes.

**Objective 4.1.** To protect the natural resource base to ensure both sustainability and economic viability for multipurpose use (e.g. agriculture, forestry, wildlife, recreation, etc.).

**Performance goal 4.1.1.** To develop, transfer, and promote the adoption of efficient and sustainable agriculture, and other resource conservation policies that ensure ecosystem integrity and biodiversity.

**Indicators 4.1.1.**

- Develop and implement integrated sustainable production systems for natural resources that are compatible with environmental quality (linked to goals 1. and 5.).
- Evaluate social and economic issues and policies affecting land use and sustainable production systems (linked to goal 5).
- Identify and utilize processes contributing to desertification/deforestation, in traditional and improved production systems and develop methods to sustain the national resource base.
- Encourage development of new university academic programs to train students in ecosystem integration and biodiversity.

**Performance Goal 4.1.2.** To develop, transfer and promote efficient and sustainable technologies that protect water quality.

**Indicators 4.1.2.**

- Determine and apply mechanisms and effects of current and changing management practices through increased understanding of the fate and transport of water contaminants (surface and ground water).
- Assess the implications of water quality impairment on human health (linked to goals 2 and 5).
- Develop and utilize biological and chemical methods for preventing and remediating the contamination of water and soil.

**Objective 4.2.** To enhance the stewardship of natural resources to minimize negative environmental consequences on agricultural production.

**Performance goal 4.2.1.** To understand the impacts (benefits and harmful effects) of global environmental change.

**Indicators 4.2.1.**

- Evaluate the mechanisms of UVB, increased carbon dioxide, atmospheric deposition, and increased atmospheric gas pollutants on physiological processes and stress in plant and animal systems.
- Develop management systems that can alter levels of carbon dioxide and other greenhouse gases.
- Understand and develop plant and animal mechanisms for sensing environmental conditions to improve managed and natural ecosystems.

**Performance Goal 4.2.2.** To understand the compatibility of agricultural practices on the natural resource base and environment.

**Indicators 4.2.2.**

- Develop models to quantify the effects of land use, water management, and cultural practices on hydrology and sediment transport.
- Develop predictors of the transport and fate of pesticides, fertilizer nutrients, and other potential contaminants in agricultural and forestry soils (linked to goal 1).
- Evaluate alternative policies and incentives for resolving conflicts between competing uses of land, air and water resources.
- Assess the impacts and rate of irreversible land losses to other uses for future agricultural and forestry production (linked to goals 1 and 5).

**Goal 5: To enhance economic opportunities and the quality of life among families and communities**.

This goal area will include a number of traditional research and education activities linked closely to the efforts of agricultural economists and rural sociologists. Research and education efforts will provide answers to questions on production efficiency, marketing of agricultural products, the value of products in

respect in domestic and international markets, and the consequences of change in production and management strategies on production enterprises. Activities will be directed to help the public and decision-makers understand changes in agriculture imposed by new trends in biotechnology research and sustainable agricultural systems and inform regulatory agencies concerning risks related to advances in biotechnology.

**Funding by program activities ($000's)**

Program Activities: This goal is supported by research, education, and extension activities conducted under the authorities discussed in the Purpose Statement.

| | FY 1998 Actual | FY 1999 Actual | FY 2000 Estimate | FY 2001 Estimate |
|---|---|---|---|---|
| Research/Education Activities | | | | |
| **Funding (Appropriated )** | 51,379 | 73,878 | 68,988 | 63,944 |
| **Funding (Reimbursable)** | 5,888 | 5,387 | 5,117 | 5,117 |
| Extension Activities | | | | |
| **(Appropriated)** | 68,939 | 70,536 | 68,398 | 72,023 |
| **(Reimbursable)** | 5,852 | 5,916 | 7,357 | 7,357 |
| Integrated Activities | | | | |
| **(Appropriated)** | 0 | 0 | 1,950 | 8,001 |
| **(Reimbursable**) | 0 | 0 | 0 | 0 |
| Mandatory Activities | 0 | 0 | 18,000 | 21,000 |
| **Total Funding** | 132,058 | 155,717 | 169,810 | 177,442 |
| Staff Years (FTEs) | | | | |
| **(Appropriated)** | 61 | 59 | 64 | 63 |
| **(Reimbursable)** | 2 | 3 | 2 | 2 |
| **(Mandatory)** | 0 | 0 | 2 | 3 |
| **Total FTEs** | 63 | 62 | 68 | 68 |

**Agency Actions 5.1:**

- Encourage multi-state, multi-disciplinary and integrated research and education strategies to improve quality of life in citizens (In cooperation with HHS, USDA/FNS, Department of Education, etc.)
- Increase the percentage of Hatch formula fund allocations in the social and behavioral sciences from 5 percent (1992) to 8 percent by FY 2001
- Identify social, cultural and policy factors that influence the demands for U.S. products in world markets (linked to goal 1)
- Foster interagency cooperation to develop comprehensive risk management education activities.
- Determine the economic, social, and ecological costs and benefits of alternative management systems for land, water, and wildlife resources (linked to goal 4)

**Objective 5.1.** To increase the capacity of communities and families to enhance their own economic well-being.

**Performance Goal 5.1.** To improve approaches for understanding changing characteristics of communities and families.

**Indicators 5.1.**

- Examine patterns of work, product consumption, lifestyles, and ethnicity in relation to the stability and development of families, youth and the elderly.
- Develop and apply organizational mechanisms to assist individuals and families in coping with problems.
- Develop new measures and analysis of demographics, labor force status, skill levels, and human capital endowments to improve the quality of life in rural communities.

**Objective 5.2.** To increase the capacity of communities, families, and individuals to improve their own quality of life.

**Performance Goal 5.2.** Improve economic and social indicators of community well-being.

**Indicators 5.2.**

- Evaluate alternative strategies to provide essential services, including education, child care, welfare, transportation and telecommunications in rural communities.
- In consultation with professional associations, such as the National Association for the Education of Young Children, develop standards and training materials to implement a national “train-the-trainer”child care system and certify those who complete the program; develop campus-based, on-line, distance education, and continuing education courses related to child care; and assist communities in establishing sustainable child care programs.

**Performance Goal 5.3.** To improve approaches for understanding of the impact of agricultural technologies and practices on the environment, people and communities.

**Indicators 5.3.**

- Identify environmentally acceptable opportunities and methods to recycle and dispose of wastes in disadvantaged communities.
- Develop an understanding of social, economic and environmental forces and policies that have the greatest influence on vitality of rural sectors.
- Encourage the development of new instructional delivery systems to reach students in rural areas.

**Goal 6: Management Initiatives**.

The indicators listed below highlight management accomplishments that CSREES is working to achieve in the designated fiscal year(s). CSREES will describe the impact of the accomplishments in annual performance reports. Funding and FTEs to support management initiatives are included under program goals.

**Initiative 6.1: Strengthen the Federal/State Partnership**

**Objective 6.1.1:** Expand program participation to assure that minority-serving institutions receive equitable support to assist USDA in carrying out its mission.

**Performance Goal 6.1:** Identify and implement funding opportunities that promote the agricultural research, extension, and education capacity of minority-serving institutions.

**Indicators 6.1:**

- In FY 2000 CSREES will implement the newly authorized 1994 Institutions Research Program.
- In FY 2001 the requested levels of funding are increased for the National Needs Graduate Fellowship Grants Program, the Hispanic-Serving Institutions Grants Program, the 1890 Teaching and Research Capacity Building Grants Program, and the Multicultural Scholars Grants Program.

**Performance Goal 6.1.2:** Encourage the participation of minority institutions in agency outreach efforts.

**Indicators 6.1.2:**

- In FY 2000 and FY 2001 CSREES will conduct a grant writing workshop to help potential recipients, including minority institutions, become more successful at applying for grants from CSREES.

**Objective 6.2:** Increased Stakeholder Input

**Performance Goal 6.2:** Solicit and obtain input from CSREES stakeholders to address agricultural research, extension, and education issues and to develop approaches to problem-solving.

**Indicators 6.2:**

- In FY 1999 CSREES obtained and considered input from the land-grant university system on national priorities in the development of the FY 2001 budget.
- In FY 1999 CSREES co-sponsored a Food Safety National Conference with ARS for the purpose of prioritizing food safety research.
- In FY 1999 and FY 2000 CSREES will continue to work with the land-grant university system to implement the provisions of the Agricultural Research, Extension, and Education Reform Act of 1998 so that improvements in accountability for plans of work and reporting requirements are made.
- In FY 1999, FY 2000, and FY 2001 CSREES will continue to ensure that a wide variety of stakeholders have the opportunity to provide input into the prioritization of research, extension, and education issues and problem-solving.
- In FY 2000 CSREES will implement the Initiative for Future Agriculture and Food Systems with consideration to the input provided by stakeholders.

**Objective 6.1.3:** Broker additional funding to further the research, extension, and education activities of CSREES.

**Performance Goal 6.1.3:** Identify and foster partnerships with other Federal agencies to increase outside interest and support of CSREES activities.

**Indicators 6.1.3:**

- In FY 1999 CSREES received approximately $35 million from other Federal agencies for support of research, extension, and education activities that are of mutual interest to CSREES and the contributing agencies. For example, in FY 1999 CSREES received approximately $2.8 million from the U.S. Army to support research on agriculturally-based remediation technologies to restore contaminated military and civilian sites; in FY 1999 CSREES also received approximately $283,000 from USDA's Risk Management Agency to support a project entitled, "Designing and Evaluating a Whole Farm Revenue Safety Net Concept."

- In FY 1999, FY 2000, and FY 2001 CSREES will continue its efforts to identify and secure outside funding to strengthen the research, extension, and education programs conducted by land-grant university and other partner institutions.

**Initiative 6.2: Integration of Research, Extension, and Education**

**Objective 6.2:** Enhance linkages among research, extension, and education to ensure that the knowledge and technology generated by research is delivered to end-users, including producers, consumers, students and faculty, and communities.

**Performance Goal 6.2:** Develop and maintain an agenda for promoting the integration of research, extension, and education where possible

**Indicators 6.2:**

- In FY 1999 and FY 2000 CSREES will continue joint efforts with the land-grant university system to implement provisions of the Agricultural Research, Extension, and Education Reform Act of 1998 requiring that certain percentages of formula funds provided under the Smith-Lever Act be dedicated to integrated extension and research activities.

- In FY 2000 CSREES will implement the Integrated Research, Education, and Extension Competitive Grants program, authorized by the Agricultural Research, Extension, and Education Reform Act of 1998, to support integrated activities in water quality, food safety, and pest management.

- In FY 2001 CSREES will implement three new initiatives under the Integrated Research, Education, and Extension Competitive Grants program: Biobased Products, Invasive Species, and International Science and Education.

**Initiative 6.3: Improved Information Management Systems**

**Objective 6.3:** To provide access to information on research, extension, and education activities to CSREES customers via electronic means.

**Performance Goal 6.3.1:** Enhance the Current Research Information System (CRIS)

**Indicators 6.3.1:**

- In FY 2000 and FY 2001 CSREES will continue the implementation of the new CRIS classification and taxonomy and three other CRIS enhancement areas: Communications and Customer Relations; Research Planning; and User Friendly/System Attributes.

**Performance Goal 6.3.2:** Implement and Maintain the Research, Extension, and Education Information System (REEIS) for Use by the REE Agencies, USDA, and their Partners and Customers in Accessing Information

**Indicators 6.3.2:**

- In FY 1999 CSREES continued REEIS implementation through technical database assessments and the development and review of the REEIS system requirements, specifications, and design.

- In FY 2000 CSREES will produce a system prototype and begin testing, staffing, and implementing the system.

- In FY 2001 CSREES will initiate system operation and maintenance, as well as other related activities, including the hiring and training of REEIS information technology staff, enhancement of targeted databases to ensure REEIS-readiness, user training, and system evaluations through live testing and user feedback.

**Initiative 6.4: Improving Financial Management within USDA**

**Objective 6.4:** Address USDA Financial Management Issues

**Performance Goal 6.4.1:** Implement integrated financial management systems in USDA

**Indicator 6.4.1:**

- In FY 2000 and FY 2001, on behalf of the Research, Education, and Economics (REE) mission area, the Agricultural Research Service (ARS) will continue to work with the Office Chief Financial Officer (OCFO) and the National Finance Center (NFC) in the planning, design and modification of the Department-sponsored financial system improvement initiatives. The REE agencies, including CSREES, will continue to work with NFC on implementing new and modernized financial systems.

**Performance Goal 6.4.2:** Correct internal control deficiencies in a timely manner

**Indicator 6.4.2:**

- In FY 2000 and FY 2001, CSREES will continue its compliance with Federal Managers' Financial Integrity Act (FMFIA) reporting requirements, including the timely completion of audit report recommendations and the timely correction of any FMFIA weaknesses that are identified.

**Performance Goal 6.4.3:** Maintain and provide access to reliable cost accounting information

**Indicators 6.4.3:**

- In FY 2000 and FY 2001, CSREES will continue to work with the OCFO and NFC to implement and employ cost accounting principles to the maximum extent necessary to accomplish the agency mission.

- As required, CSREES will perform necessary biennial reviews of user charges as required by OMB Circular A-25, User Charges, and continue to review agency operations for new potential user fee situations.

**Performance Goal 6.5:** Clean and timely audit opinion on audited financial statements

**Indicator 6.5:**

! On behalf of the REE agencies, ARS will continue to prepare and submit the yearly Consolidated Financial Statements of the agencies in accordance with Departmental prescribed procedures, and as required under the Chief Financial Officer's Act.

**Performance Goal 6.6:** Compliance with Debarment and Suspension and Drug-Free Workplace Programs

**Indicator 6.6:**

! In FY 2000 and FY 2001, CSREES will continue to require all recipients of grants and/or cooperative agreements to comply with debarment and suspension and drug-free workplace requirements.

**COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE (CSREES)**

***FY 2001 President's Budget***

*(Thousands of dollars)*

**SUMMARY OF CSREES RESOURCES**

| PERFORMANCE GOALS | FY 1999 Appro-priation | FY 2000 Appro-priation | FY 2001 President's Budget |
|---|---|---|---|
| **Strategic Goal #1:** To achieve an agricultural production system that is highly competitive in the global economy. | **228,899** *FTE 88* | **291,154** *FTE 105* | **303,071** *FTE 115* |
| **Strategic Goal #2:** To provide a safe and secure food and fiber system. | **208,579** *FTE 85* | **228,945** *FTE 84* | **231,895** *FTE 86* |
| **Strategic Goal #3:** To achieve a healthier, more well-nourished population. | **206,854** *FTE 89* | **238,175** *FTE 108* | **241,689** *FTE 105* |
| **Strategic Goal #4:** To achieve greater harmony (balance) between agriculture (production activities) and (stewardship and protection of) the environment. | **158,502** *FTE 66* | **203,112** *FTE 75* | **209,298** *FTE 77* |
| **Strategic Goal #5:** To enhance economic opportunities and the quality of life among families and communities. | **155,717** *FTE 62* | **169,810** *FTE 68* | **177,442** *FTE 68* |
| TOTALS | **958,551** *FTE 390* | **1,131,196** *FTE 440* | **1,163,395** *FTE 451* |

*Notes:*
*1. Integrated Activities, Mandatory Activities, and Reimbursables are included.*
*2. Resources to support Goal 6, Management Initiatives, are included under program goals 1 through 5.*
*3. FY 1999 reflects actual Reimbursables.*
*4. FY 2000 reflects the 0.38 rescission.*